

SECTION 1 - HAZARDOUS MATERIALS STORAGE

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Synopsis

NOTE: This section ensures hazardous materials and equipment containing these materials are properly stored at NWS locations. It applies to all NWS facilities and work sites that store corrosive, flammable, combustible, toxic, or reactive materials.

Initial Implementation Requirements:

- Designate an Individual to Coordinate the Hazardous Material Storage Efforts
 - Compare Site/Facility Operations with the Requirements of this Section
- For materials stored in small quantities (1.7):
- Identify materials that are:
 - flammable
 - combustible
 - corrosive
 - reactive
 - Ensure flammables are stored in appropriate storage lockers (1.7.1)
 - Ensure corrosives are stored compatibly (1.7.2)
 - Ensure reactive materials are stored compatibly (1.7.3)
 - Ensure janitorial supplies are properly stored (1.7.4)
 - For Storage in large quantities:
 - If aboveground storage containers are used for petroleum products, determine if a Spill Prevention Control and Countermeasures (SPCC) plan is required (1.8.2)
 - If a Spill Prevention Control and Countermeasures (SPCC) Plan is required (1.8.1), review it to ensure:
 - It has been reviewed at least every 5 years or when changes to equipment or operations occur (1.8.1)
 - No identified spill containment structures have been modified (1.8.1)
 - All identified spill response equipment is available and operational (1.8.1)
 - All NWS personnel who maintain the spill containment structures or are responsible for spill response have been trained (1.8.1)
 - If a SPCC Plan is not required, ensure that Best Management Practices (BMP) plan been adopted in accordance with the Attachment A (1.8.1)
 - If an underground storage tank is used, ensure:
 - The tank is registered with the State (1.8.3 a)
 - The tank meets the Environmental Protection Agency (EPA) design standards (1.8.3 b)
 - If the tank was an existing tank, it was upgraded to meet the EPA design standards (1.8.3c)
 - The tank has an operating leak detection system (1.8.3 d.1)
 - The tank has monthly monitoring (1.8.3 d.2)
 - Determine if the facility has hazardous chemicals or extremely hazardous chemicals on hand in a quantity that equals or exceeds the regulatory limits. If so, submit the required Tier II report to the Local Emergency Planning Committee (LEPC), SERS, or Fire Department (1.8.4)

Recurring and Annual Task Requirements:

- Review the SPCC Plan annually to determine if any changes to emergency contacts,

- equipment and/or operations occurred. (1.8.1)
- Review and self-certify the SPCC Plan every 5 years by a facility manager or PE (when required) or when changes to equipment or operations occur (1.8.1)
 - Periodically inspect the facility to ensure small quantities of hazardous materials are properly stored (1.7)

Hazardous Materials Storage Checklist		YES	NO	NA
1.	Has a Designated Person responsible for the day-to-day implementation of the hazardous material storage program been appointed? (1.6.1)	—	—	—
Hazardous Materials Storage				
2.	Does the facility/work site use or store OSHA hazardous materials or hazardous substances? (1.6.2)			
a.	If yes, has an MSDS/SDS for each regulated material been submitted to the local Fire Department and/or Local Emergency Planning Committee or the State Emergency Response Commission? (1.8.4b)	—	—	—
b.	Has a Tier II form been filed with the Local Emergency Planning Committee, State Response Emergency Committee or Fire Department annually before March 1? (1.8.4)	—	—	—
3.	Does the storage of small quantities of flammable materials comply with Procedure 16 of NWSM 50-1115? (1.7.1)	—	—	—
4.	Are appropriate eyewash/drenching facilities available to personnel working with corrosive material (1.7.2)?	—	—	—
	Is the eyewash/drenching facility:	—	—	—
a.	Available within 10 seconds?	—	—	—
b.	Capable of 15 minutes of continuous flushing at 0.4 gpm? (1.7.2)	—	—	—
5.	Are materials stored in a compatible manner? (1.7.2, 1.7.3, 1.7.4)	—	—	—
Petroleum Storage (1.8.1)				
1.	Does the facility/work site store more than a total of 1,320-gallons of petroleum product in containers that are 55-gallons or larger and is there a potential that a discharge can reach the U.S. navigable waterways?	—	—	—
a.	If so, does the facility have an SPCC Plan?	—	—	—
b.	If so, is the site attended more than 4-hours per day?	—	—	—
	<ul style="list-style-type: none"> If so, is the SPCC Plan on-site? Does the associated field office have a copy readily available for personnel and regulators? 	— —	— —	— —
c.	Has the SPCC Plan been thoroughly reviewed at least every 5-years or when major changes to equipment or operations occur? Has the SPCC Plan been reviewed and self-certified by the facility when technical amendments are required, unless PE certification is required (e.g., when alternative methods for environmental protection are included in the Plan or tank(s) total capacity exceeds 10,000 Gallons)?	—	—	—
d.	Has the SPCC Plan been reviewed annually to verify that non-technical information (e.g., names, addresses, and phone numbers) is up-to-date?	—	—	—

e. If an SPCC Plan is not required, has a Best Management Plan (BMP) been prepared?	—	—	—
2. Has a Spill Coordinator been appointed? (1.8.1)	—	—	—
3. Have facility/work site personnel received the required training? (1.8.1)	—	—	—
4. Are discharge prevention briefings conducted annually? (1.8.1)			
5. If the petroleum product is stored in an aboveground tank, has the tank undergone visual integrity inspections on a regular schedule and when repairs are done? (1.8.2)			
6. Are records of monthly and annual inspections kept on-site for at least 3 years? (1.8.1a)			
Underground Storage Tanks			
1. Does the facility/work site store petroleum in a container that meets the definition of an “underground storage tank”? (1.8.3)	—	—	—
2. If yes, is the UST registered with the State? (1.8.3a)	—	—	—
3. Does the UST meet the design standards in 40 CFR 280.20 or State equivalent? (1.8.3b)	—	—	—
4. Is release detection performed on a periodic basis to detect leaks (1.8.3 d.1)?	—	—	—
5. Are proper spill response procedures in place (1.8.3)?	—	—	—
6. If a release has occurred in the past, was corrective action performed (1.8.3)?	—	—	—
Emergency Planning and Community Right to Know Act			
1. Does the facility or work site store 10,000 pounds or more of an OSHA-defined hazardous substance at any time? (1.8.4a)	—	—	—
• If yes, has an MSDS/SDS for each regulated material been submitted to the local Fire Department or the Local Emergency Planning Committee or the State Emergency Response Commission? (1.8.4b)	—	—	—
2. Does the facility store any extremely hazardous substance (EHS), as defined in 40 CFR 355, in a quantity equal to or greater than 500- pounds or the threshold planning quantity (TPQ) listed in 40 CFR 355 for that (EHS) (whichever is less)? (1.8.4a)	—	—	—
a. If yes, has an MSDS/SDS for each regulated material been submitted to the local Fire Department or Local Emergency Planning Committee? (1.8.4b)	—	—	—
b. Has the Tier II been re-submitted annually? (1.8.4)	—	—	—
Gasoline Storage			
Does the storage of gasoline in small containers comply with Section 16 of NWSM 50-1115 - Occupational Safety & Health? (1.9.1a)	—	—	—

Unused Oil			
7. Is unused oil stored in the original container away from food and beverages? (1.9.2a)	—	—	—
8. Are transfer containers labeled to identify the contents? (1.9.2a)	—	—	—
Used Oil			
1. Is used oil stored in DOT- approved containers? (1.9.2b)	—	—	—
2. Is spill response equipment readily available? (1.9.2b)	—	—	—
Ethylene Glycol Based Antifreeze (1.9.3)			
1. Is <u>unused</u> antifreeze stored in the original container away from food and beverages and in an area that provides containment in the event of a leak or spill? (1.9.3a)	—	—	—
2. Are transfer containers labeled to identify the contents? (1.9.3a)	—	—	—
3. Is the <u>used</u> antifreeze stored in DOT-approved containers? (1.9.3b)	—	—	—
4. Are the containers in good condition, labeled “antifreeze/water mixture” and stored to prevent a release or spill? (1.9.3b)	—	—	—
Propylene Glycol from Rain Gauges and AWPAG (1.9.4)			
Does the facility currently collect oil/propylene glycol/water mixtures from the rain gauges?	—	—	—
a. If yes, is the material separated into oil and propylene glycol/water solution?	—	—	—
b. Is the container in good condition and labeled “Oil/Propylene Glycol/Water Mixture - DO NOT DRINK!”?	—	—	—
c. Has the local POTW been contacted to determine if the propylene glycol/water mixture can be discharged into the sewer system?	—	—	—
d. Has the used oil contractor been contacted to prior to mixing with the used oil to determine if this procedure will create any problems in recycling the oil?	—	—	—
Universal Wastes			
Does the facility or work site recycle batteries (1.9.5) and fluorescent tubes (1.9.6)?	—	—	—
a. Are the stored universal wastes protected from damage and closed when not actively filled? (1.9.5, 1.9.6)	—	—	—
b. Are the storage/accumulation containers clearly identified and marked with the date the accumulation began (1.9.5, 1.9.6)?	—	—	—
Paints (1.9.8)			
Does the facility or work site store flammable paints in accordance with NWSM 50-1115 - Occupational Safety & Health Procedure 16 - Flammable and Combustible Storage?	—	—	—
Compressed Gas Cylinders (1.9.9)			

Does the facility/work site store compressed gas cylinders in accordance with NWSM 50-1115 Occupational Safety & Health Procedure 9 - Compressed Gas Safety?	–	–	–
Mercury Containing Equipment (1.9.11)			
<p>Has the facility surveyed for the devices or part of the devices that could contain elementary mercury? Some of the various types of MCE are:</p> <ul style="list-style-type: none"> • High Intensity Discharge Lamps • Mercury Containing Switches - furnace controls, HVAC controls, laboratory and industrial equipment • Mercury Thermostats • Silent Wall Switches (Prior to 1991) • Freezer and Flame Sensors - gas fired devices and pilot lights. • Manometers/Barometers/Thermometers. • Float Switches - sump pumps and septic tanks • Mercury regulators 	–	–	–

SECTION 1 - HAZARDOUS MATERIALS STORAGE

1.1 Purpose and Scope

To perform its mission, National Weather Service (NWS) facilities and work sites must store and use hazardous materials such as diesel, propane and other fuels, as well as oils, batteries, paints, solvents, and mercury containing equipment. This procedure has been promulgated to ensure these materials are safely stored and managed.

1.2 Definitions

Container	An object used for storage. It may be a drum, aboveground tank, or other storage receptacle.
Designated Person	An NWS employee designated by the Station Manager who is responsible for ensuring all hazardous materials at the work site are stored in accordance with Federal, State and local regulations.
Facility	For purposes of the Emergency Planning and Community Right-to-Know Act (EPCRA), all buildings, equipment, structures and other stationary items that are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by or under common control with, such person). Facility will include man-made structures as well as all natural structures in which chemicals are purposefully placed or removed through human means such that it functions as a containment structure for human use. For purposes of emergency release notification, the term includes motor vehicles, rolling stock and aircraft.
Hazardous Air Pollutants	Chemicals which can cause adverse effects to human health or the environment. A list of chemicals that EPA has identified as airborne containments that are known to be hazardous to human health. There are currently 188 listed chemicals (See Appendix B of this manual).
Leak Detection	A system used to determine if an underground or aboveground tank is leaking.
Liquefied Petroleum Gas	Any material which is composed predominantly of any of the following hydrocarbons, or mixtures of them: propane, propylene, butane (normal butane or isobutane), and butylene, made liquid by pressure.
Mercury Containing Equipment	A device or part of a device that contains elementary mercury integral to its function. It can be managed as a universal waste. If the mercury is in the device accidentally (the device does not contain mercury in its regular use), or the device has been contaminated by an external source of mercury, the device cannot be managed as universal waste.
Operating Unit	Includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), National Logistics Support Center (NLSC), Radar Operations Center (ROC) or the Sterling Field Support Center (SFSC).

Publicly-Owned Treatment Works (POTW)	A municipal sewage treatment plant.
Reportable Quantity (RQ)	<p>The amount of a hazardous substance as set forth in 40 CFR 302.4, which requires an immediate report to the National Response Center if released into the environment within any 24-hour period</p> <p>-AND/OR -</p> <p>The amount of an extremely hazardous substance, as established in 40 CFR 355, which, when released off-site, requires an immediate report to the Community Emergency Coordinator for the Local Emergency Planning Committee (LEPC).</p>
Secondary Containment	Use of a device or technique such as a berm, dike, culvert, diversion pond, etc. that is designed to prevent the spread of a spill or release of a regulated material.
Spill Coordinator	An individual designated within the SPCC Plan who will be accountable for oil discharge prevention. This individual is responsible for ensuring required maintenance is performed on equipment and structures, response procedures are appropriate, response supplies are on hand, and personnel are trained to prevent and respond to releases.
Station Manager	For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; NCEP Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; Tropical Prediction Center, NP8, and Space Weather Prediction Center, NP9); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SFSC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).
Threshold Planning Quantity (TPQ)	The quantity of an extremely hazardous substance as identified in 40 CFR 355.
Tier II Form	A reporting form required under the Emergency Planning and Community Right-to-Know Act which reports information on specific hazardous chemicals present at a facility above the threshold levels established by the EPA in 40 CFR370.20. This form is found in 40 CFR 370.41 and is available on-line as explained in Attachment B to this section.
Underground Storage Tank (UST)	A tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground and stores either a petroleum product or any hazardous substance listed on the list generated under the Comprehensive Environmental Response, Compensation Liability Act (CERCLA) or Superfund, and published in 40 CFR 302.4.

1.3 Acronyms Employed in This Section

AWPAG	All Weather Precipitation Accumulation Gauge
ASTM	American Society for Testing and Materials
BMP	Best Management Practices
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOT	Department of Transportation
EHS	Extremely Hazardous Substance
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
HAP	Hazardous Air Pollutant
HC	Hazardous Chemical
HSWA	Hazardous and Solid Waste Amendments
HVAC	Heating, Ventilation and Air Conditioning
gpm	Gallon per Minute
LEL	Lower Explosive Limit
LEPC	Local Emergency Planning Committee
MCE	Mercury Containing Equipment
MSDS/SDS	Material Safety Data Sheet/Safety Data Sheet
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
SECO	NOAA Safety and Environmental Compliance Office
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
NWSH	National Weather Service Headquarters
OSHA	Occupational Safety and Health Administration
OSH Act	Occupational Safety and Health Act
PE	Professional Engineer
POTW	Publicly Owned Treatment Works
RQ	Reportable Quantity
SERC	State Emergency Response Commission
SPCC	Spill Prevention Control and Countermeasures
sp.gr.	specific gravity
TPQ	Threshold Planning Quantity
TCLP	Toxicity Characteristic Leaching Procedure
UEL	Upper Explosive Limit
UST	Underground Storage Tank

1.4 Regulatory Requirements

Because of overlapping concerns, storage of hazardous materials is regulated under environmental, worker safety, and transportation regulations. The National Fire Protection Association (NFPA) has created the “Flammable and Combustible Liquids Code” (NFPA 30) and “Liquefied Petroleum Gas Code” (NFPA 58) which are the national standards (incorporated by reference in OSHA standards) for the storage of these materials.

1.4.1 Federal

a. Clean Water Act

The Clean Water Act regulates the storage of oil and petroleum products to prevent their release into the waters of the United States and ensure a proper response should a release occur.

For the storage of larger quantities of petroleum, the regulations require the creation and implementation of facility-specific Spill Prevention, Control, and Countermeasure (SPCC) Plans. The rules can be found in 40 CFR 112. To ensure spills of hazardous materials are reported and properly managed, the EPA has also created a list of regulated materials and has assigned each a “reportable quantity (RQ).” This list, found in 40 CFR 302.4, requires spills that are larger than the RQ to be reported to the National Response Center and has been incorporated in this section (see Appendix B of the Manual).

b. Clean Air Act

The Clean Air Act requires facilities that store large quantities of petroleum products or volatile organic liquids to obtain permits as stationary emission sources. Facilities are required to obtain Title V Operating Permit if they are considered a “major source”:

- A major source has actual or potential emissions at or above the major source threshold for any “air pollutant.”
- The major source threshold for any air pollutant is 100 tons/year (this is the “default value”).
- Lower thresholds apply in non-attainment areas (but only for the pollutant that are in non-attainment). (See Table below).
- The EPA generally has not required non-major sources to get permits.

For additional information on CAA requirements, refer to Section 8 of NWSM 50-1115.

c. The Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or Superfund was created in 1980 to address the problem of old hazardous waste dump sites. In establishing the regulatory program under this law, the Environmental Protection Agency (EPA) promulgated a series of regulations that established, among other things, the requirement for the reporting to the National Response Center of all spills, leaks or “releases” into the environment in excess of a “reportable quantity” or RQ for chemicals that were deemed “hazardous substances.”

d. Hazardous and Solid Waste Amendments

The Hazardous and Solid Waste Amendments (HSWA) were enacted in 1984. Subtitle I of the law required the EPA to regulate underground storage tanks that contained the EPA-defined hazardous substances that were created as a result of CERCLA.

e. Emergency Planning and Community Right-to-Know Act (EPCRA)

EPCRA was created to ensure local response personnel know what they might be facing when responding to an emergency. The law requires facilities that use and/or store Extremely Hazardous Substance (EHS) to notify the Local Emergency Planning

Committee (LEPC) of the hazard presence, location, and quantity of each EHS on an annual basis. The list of EHSs is found in 40 CFR Part 355.

If an NWS facility stores at any time any EHS in a quantity greater than the Threshold Planning Quantity (TPQ), it will be regulated under EPCRA (see Appendix B to this manual).

For example, an NWS facility will be regulated, if it stores a total of:

- 1) 500 pounds or more of battery acid - because battery acid is listed as an EHS (total of 500 pounds or the TPQ, whichever is less), or
- 2) 10,000 pounds of diesel fuel, heating oil or gasoline - about 1,300-1,500-gallons, because these are OSHA hazardous substances, or
- 3) 10,000 pounds of propane - about 2,500-gallons, or
- 4) 10,000 pounds of hydrogen.

If the TPQ for any EHS is exceeded, a number of reports must be filed in preparation for an emergency event. Section 1.8.4 explains the EPCRA reporting requirements in detail.

f. Occupational Safety & Health Act

The Occupational Safety & Health Act (OSH Act) has empowered the Occupational Safety and Health Administration (OSHA) to create regulations for the storage of hazardous chemicals. The rules cover broad classes of chemicals such as flammable or corrosive, as well as many specific chemicals. These rules are found in 29 CFR 1910.

g. Hazardous Materials Transportation Act

Although the Hazardous Materials Transportation Act legally deals with hazardous materials while in transport by specifying containers, markings and labels, the regulations in 49 CFR 172 have the additional effect of specifying containers, markings and labels that should be used while in storage.

1.4.2 National Fire Code

The National Fire Protection Association (NFPA) has created “Flammable and Combustible Liquids Code” (NFPA 30) and “Liquefied Petroleum Gas Code” (NFPA 58) which are the national standards (incorporated by reference by OSHA) for the storage of these materials.

1.5 Spill Reports

Because the amount of a hazardous material or extremely hazardous material that is spilled or released will often determine the risks to human health and the environment, the EPA has created two separate lists of these materials and assigned each a “Reportable Quantity” or RQ. Should a hazardous material be spilled or released into the environment in an amount equal or greater than the RQ, a report must be filed with the National Response Center.

If an extremely hazardous substance is released and the amount that goes off-site is equal to or greater than the RQ in 40 CFR 355, the Community Emergency Coordinator for the Local Emergency Planning Committee must be notified immediately.

The RQs range from 1 pound to 5,000 pounds depending on the dangers presented by the released material. The list of hazardous materials and their RQs are found in 40 CFR 302.4, and the list of extremely hazardous substances and their RQs are found in 40 CFR 355 which are reproduced in Appendix B to this Manual as the List of Hazardous and Extremely Hazardous Substances. A detailed discussion on the procedure for the reporting of spills or releases of hazardous materials is found in Section 4 of this Manual.

Although diesel or lubricating oils are not found on the list of hazardous substances in Table 302.4, the EPA does require the reporting of spills of petroleum products. For these spills, the National Response Center must be notified if the release or discharge may violate applicable water quality standards or may cause a film, sheen, or discoloration of the surface of the water, or the formation of sludge below the surface of the water.

If the facility is regulated under the SPCC rule and has a reportable discharge according to EPA regulations, it must be reported to both NRC and EPA. Normally a discharge must be reported to EPA Regional Administrator when there is a discharge of:

- More than 1,000 gallons of oil in a single discharge into or upon navigable waters or adjoining shorelines, or
- More than 42 gallons of oil in each of two discharges into navigable waters or adjoining shorelines within any 12-month period.

Per 40 CFR 112.2 *Navigable waters* means waters of the United States, including the territorial seas.

(1) For purposes of the Clean Water Act, 33 U.S.C. 1251 *et seq.* and implementing regulations, subject to the exclusions in paragraph (2) of this definition, the term “waters of the United States” means:

- (i) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (ii) All interstate waters, including interstate wetlands;
- (iii) The territorial seas;
- (iv) All impoundments of waters otherwise identified as waters of the United States under this section;
- (v) All tributaries, as defined in paragraph (3)(iii) of this definition, of waters identified in paragraphs (1)(i) through (iii) of this definition;
- (vi) All waters adjacent to a water identified in paragraphs (1)(i) through (v) of this definition, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters

It is important to note that some states have their own reporting requirements for oil and hazardous materials. The SPCC plan should be checked for respective state requirements.

NOTE: Some states 'reporting threshold' is over 25 gallons or over 42 gallons of oil spilled on the surface of the land and any quantity spilled into the waters that would produce visible oil slick, oil solids, or coat aquatic life, habitat or property with oil.

Appendix C is a listing of the websites of state environmental agencies. It can be used to determine state-specific requirements. If this information is not available on-line, contact the NWS Regional/Operating Unit Environmental/Safety Coordinator, and/or the NWSH environmental and safety staff to determine if state or local requirements exist.

1.6 Implementation of a Storage Program for Hazardous Materials

1.6.1 The Station Manager

Appoints an individual who will be responsible for the day-to-day implementation of the hazardous material storage program.

1.6.2 The Designated Person

The designated person is responsible for reviewing the list of hazardous materials and the associated SDSs used at the facility or work site. This list is required as part of NWSM 50-1115, Procedure 7 - Hazard Communication Standard. The purpose of this review is to identify and quantify the materials considered flammable, combustible, corrosive, and/or reactive.

The Designated Person reviews Appendix B to this Manual to determine:

- If the materials are considered a hazardous substance under 40 CFR 302.4 or an EHS under 40 CFR 355 or both, and
- The reportable quantity for each substance, and
- The threshold planning quantity (TPQ) if the material is considered an extremely hazardous substance.

The Designated Person also determines the type and size of storage container(s) used for each hazardous material and/or petroleum product as well as the typical and maximum volume stored at any one time.

1.7 Storage of Small Quantities of Hazardous Materials

Because even small quantities (i.e., less than 55-gallons) of hazardous materials can create major problems, they must be stored to minimize their hazards. Flammable and combustible materials must be isolated from ignition sources. Corrosives must be containerized to prevent reaction and incompatibles must be kept separated.

1.7.1 Storage of Flammable Liquids

The Designated Person will review Procedure 16 - Flammable Liquid Storage in NWSM 50-1115. This procedure describes the equipment and techniques required to safely store flammable materials including:

- Storing
- Using
- Controlling sources of ignition
- Grounding

- Housekeeping

For materials designated as flammable, the Designated Person will ensure appropriate storage space is available. If the volume of current material on-hand exceeds on-site capacity, additional storage cabinets must be obtained or the inventory must be reduced. The storage of flammable materials in areas not in conformity with NWSM 50-1115 will not be allowed.

Note: OSHA removed the use of the term combustible liquid from its standards on hazardous materials concurrent with its 2012 revision of the Hazard Communication standard.

1.7.2 Corrosive Materials

The term corrosive is applied to any material that dissolves or destroys metal or human skin. Normally, the pH scale is used to describe a corrosive material. If the pH is less than 7.0, the material is deemed acidic. If the pH is greater than 7.0, the material is deemed alkaline or basic. In addition to the need to use the appropriate personal protective equipment (i.e., gloves, aprons, goggles, etc.) when handling these materials, all corrosive materials also must be stored so as not to react. While the need to keep acids and bases separated is widely understood, it is also important to use a compatibility system to determine if two acidic or two alkaline materials can be stored together.

As a rule, because of its ability to react with a large number of other materials, a common NWS corrosive material, battery acid (sulfuric acid), must be kept segregated from all other acids. In addition, ANSI Standard Z358.1- 2009 requires an eyewash/drenching facility be available to personnel working with corrosive materials that are capable of providing 15-minutes of continuous flushing at 0.4 gpm. The facilities will be available within 10 seconds of unobstructed travel time from point of use or storage.

1.7.3 Storage of Reactive Materials

Because commercial products containing hazardous materials are normally composed of several different chemicals, the potential for a chemical reaction when two or more products are commingled (for example, when the shelving collapses in a fire or earthquake) can be high. To minimize the potential for adverse incompatible reactions, all NWS facilities and work sites must segregate hazardous materials into appropriate categories.

a. Compatibility Systems

Several compatibility systems are available in the literature and on-line. One widely used system is the NOAA Reactivity Worksheet, a free software program that can be used to find out about the chemical reactivity of thousands of common hazardous chemicals.

This software program is available on-line at:

<http://response.restoration.noaa.gov/chemaids/react.html>. Once downloaded and installed, this worksheet determines the potential for reaction when different materials combine.

b. Storage Techniques for Reactive Materials

To prevent incompatible materials from adversely reacting, two techniques - distance and containerization - are normally employed.

Distance is based on the assumption that if two materials are kept apart, it is unlikely they

will commingle and react. Using this principle, incompatible hazardous materials are stored in different storage areas or are widely separated within an area. For example, because battery acid (sulfuric acid) tends to react with many other materials, it must be stored away from all other chemicals - especially cleaning solvents.

Containerization attempts to isolate reactive materials by placing them into secondary containment units. For example, a quart bottle can be placed into a wide-mouth gallon jar and the top secured or, a number of small containers of compatible material can be placed into a plastic dish pan to prevent contact with other materials stored in the same cabinet.

1.7.4 Storage of Janitorial Supplies

Whether purchased by the NWS, lessor or a contractor, all janitorial supplies must be stored in accordance with this section. These products are often flammable, combustible, reactive, or corrosive, hence, proper storage is important to the safety of all facility or work site personnel.

NOTE: If NWS employees have access to janitorial supplies provided by a contractor or lessor, the contractor or lessor must make copies of the MSDS/SDS for each product available to the facility. The Designated Person will use these sheets to determine the hazards presented by these supplies.

1.8 Large Quantity Storage

The requirements for the storage of large quantities of hazardous materials depend on the material (i.e., hazardous substance, an extremely hazardous substance or a petroleum product), the quantity stored (i.e., more than 1,320-gallons), the type of container and its design (55-gallon drum, aboveground tank or underground storage tank), and the location of the facility.

A Spill Prevention, Control, and Countermeasures Plan (SPCC) will be required (see Section 1.8.1) if:

- a. The hazardous material is a petroleum product
 - b. More than a total of 1,320-gallons is stored in 55-gallon containers or larger
 - c. A release of oil could reach the navigable waters of the U.S. or adjoining shorelines or the waters of the contiguous zone (defined as nine miles seaward from U.S. borders) or natural resources.
- If the material is a petroleum product or an extremely hazardous substance as listed in 40 CFR Part 355 (See Appendix B), and the quantity at any time exceeds the threshold planning quantity, a notification to the LEPC will be required under EPCRA (see Section 1.8.4).
 - If the material is stored in an aboveground tank (i.e., the ConVault fuel tank), the tank must be operated and maintained in accordance with the requirements of 40 CFR Part 112 (see Section 1.8.3).
 - If the material is stored in an underground tank or an aboveground tank that has 10% of its total volume underground (including all attached piping), the tank must be registered with the state and operated in accordance with the requirements of 40 CFR Part 280 (see Section 1.8.2).

1.8.1 Spill Prevention, Control, and Countermeasure (SPCC) Plan

To prevent the discharge of petroleum products into the environment, an SPCC Plan may need to be prepared to meet regulatory requirements set forth at 40 CFR 112, Oil Pollution Prevention. The SPCC Plan can be self-certified by the facility owner or operator (e.g., Station Manager) if the facility:

- has an aggregate aboveground storage capacity of 10,000 gallons or less, and
- has had no single discharge exceeding 1,000 U.S. gallons or no two discharges each exceeding 42 U.S. gallons within any 12 months period in the three years prior to SPCC self-certification date.

If the owner and operator chooses to self-certify the Plan, the following requirements must be met:

- a. She/he is familiar with the requirements of the SPCC regulations (40 CFR 112) and has visited and examined facility.
- b. The Plan has been prepared in accordance with accepted and sound industry practices and standards.
- c. The Plan is being fully implemented.
- d. The Plan and individual(s) responsible for implementing the Plan have the full approval of management, and the facility owner and operator have committed the necessary resources to fully implement the Plan. (Note: NWS/NOAA operates under a variety of occupancy conditions. At facilities leased by NWS/NOAA, the Station Manager or other presiding official should review the lease agreement to ensure responsibility for the SPCC Plan is addressed).

NOTE: A self-certified Plan may not include alternative methods which provide environmental equivalency unless each alternative method has been reviewed and certified in writing by the Professional Engineer (PE). Any determinations that secondary containment is impracticable and alternative provisions must be reviewed and certified by PE.

PE certification is required if:

- Facility has an aggregate aboveground storage capacity more than 10,000 gallons and/or
- Facility has aggregate capacity of 10,000 gallons or less and alternative measures for environmental protection are included in the Plan. PE must describe the reason for nonconformance and describe the alternative method and how it provides equivalent environmental protection.

NOTE: The SPCC regulations allow an agent of the PE to inspect the facility in place of the PE, but the PE must review the agent's work, and certify the Plan.

Those NWS facilities or work sites that store more than a total of 1,320-gallons in containers that are 55-gallons or larger and are entirely above ground and could have a discharge into or onto the waters of the U.S. or a resource under the authority of the U.S. are required to have a SPCC Plan in accordance with 40 CFR 112 (Oil Pollution Prevention). In calculating the volume

stored on-site, the definition of a container includes drums, tanks or other storage devices that are 55-gallons or more. If the site is attended at least 4-hours per day, a copy of the Plan must be on-site and the associated field office should have a copy readily accessible to personnel or regulators.

The Station Manager has overall responsibility for ensuring that the procedures, equipment and structures specified in the SPCC Plan are maintained and operational. He/she will ensure that the plan is reviewed annually to determine if any changes to emergency contacts, equipment and/or operations occurred. The SPCC Plan review page should be updated with document review dates. Otherwise, the Plan must be thoroughly reviewed and amended, if necessary, at least once every five (5) years by a facility or PE (for facilities with total aboveground oil storage capacity more than 10,000 gallons or when alternative methods for environmental protection are used) to include more effective prevention and control, if applicable. The Plan must also be reviewed and amended within 6 months when major changes to equipment or operations occur. Completion of the review must be documented by signing a statement as to whether the Plan needs to be amended. When technical amendments are required, the Plan can be self-certified unless PE certification is required as described in paragraphs above. Examples of changes that may require technical amendment of the Plan include, but are not limited to: commissioning or decommissioning tanks; replacement, reconstruction, or movement of tanks; reconstruction, replacement, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures at a facility.

If needed, the Regional//Operating Unit Environmental/Safety Coordinator, NWSH environmental and safety staff should be contacted for assistance in securing the services of a registered PE or to address any technical issues and questions.

Under SPCC regulations, the EPA requires the designation of a person at the facility who will be accountable for oil discharge prevention (a Spill Coordinator). The Spill Coordinator will be assigned and report to the Station Manager. He/she is required to arrange for the required maintenance on the equipment and structures specified in the SPCC Plan, as well as ensure all specified response procedures are appropriate and that the spill response supplies are on-hand. The Spill Coordinator is also responsible for ensuring all NWS employees that handle oil have received training in:

- Operation and maintenance of the equipment to prevent discharges
- Applicable pollution control laws, rules and regulations
- General facility operations
- The contents of the SPCC Plan
- Their role in the event of a release

The discharge prevention briefings will be conducted once a year to assure adequate understanding of SPCC Plan. Such briefings must highlight and discuss known spills, discharges, or malfunctioning equipment, and any recently developed precautionary measures. A SPCC plan training template is provided on OPS1 web site under “Environmental Compliance - Guidance” https://www.ops1.nws.noaa.gov/Secure/env_new.htm.

OSHA also has a training requirement for NWS employees who respond to releases of petroleum products under the Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements in 29 CFR 1910.120q. Per [OSHA Interpretation](#), incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of the release by employees in the immediate release area, or by maintenance personnel, are not considered to be emergency responses within the scope of the standard 29 CFR 1910.120q.

NOTE: For NWS employees who only respond to incidental releases of diesel oil, First Responder Operations Level training would not be required. Incidental releases are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to employees in the immediate work area or those assigned to clean them up. Procedures for incidental release of diesel, are covered in the SPCC Plan and SPCC training.

Operating personnel must frequently inspect the outside of the “containers” for signs of deterioration, leaks, or accumulation of oil inside diked areas. Inspection checklists are included in the SPCC Plan for monthly and yearly inspections. The EPA requires these records be maintained for **at least three years**.

Before August 16, 2002, the EPA required an SPCC Plan if facility or work site had 660-gallons or more of oil in one container. Although under current EPA regulations, the SPCC Plan is not required if the total volume stored in above ground containers is less than 1,320-gallons, these NWS facilities should adopt a Best Management Practices (BMP) plan in accordance with the Attachment A to this section, as an alternative. Facilities that store other materials over the reportable quantity (see Appendix B of this Manual) should develop the BMP plan to communicate emergency responsiveness to possible spills (e.g., mercury spill exceeding one pound).

1.8.2 Aboveground Storage Tanks

Aboveground storage tanks that store petroleum or a hazardous substance are regulated by the Oil Pollution Prevention requirements in 40 CFR Part 112 and/or State equivalent. For NWS facilities, some of the techniques allowed to contain a spilled material from an aboveground tank include:

- Dikes, berms, or retaining walls
- Curbing
- Culverts, gutters or other drainage systems
- Weirs, booms or other barriers
- Spill diversion ponds
- Retention ponds
- Sorbant materials
- Tank spill and overflow devices.

The following tank markings need to be used for diesel and propane storage tanks:

- Diesel tanks must have NFPA diamond, DOT flammable and "Danger - Diesel Fuel - No Smoking" labels placed on the tank.
- Propane tanks must have NFPA diamond, DOT flammable and "Danger - Propane - No Smoking" labels placed on the tank.

Aboveground tanks and containers that are required to have a SPCC Plan must undergo integrity testing on a regular schedule and whenever material repairs are done. Although EPA requires combining visual inspection with non-destructive testing technique such as hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, etc., the EPA allows visual integrity inspection for shop-built tanks with shell capacity less than 30,000 gallons. The EPA recommends that the SPCC Plan explains why the visual integrity inspection is sufficient. The following should be included:

- A statement that the tank is built to ASTM Standards
- A statement that the tank is visible on all sides
- A description of the visual inspection, frequency and recordkeeping requirements
- Monthly and annual AST visual inspection checklists developed in accordance with STI SP001 standard
- A statement that facility personnel are regularly trained in pollution prevention and tank inspection requirements.

To explain equivalent environmental protection, the following should be included:

For single-walled tanks:

- The tank is single-walled,
- The tank has secondary containment and is visible on all sides, and
- There is an on-going monitoring of the tank.

For double-walled tanks:

- The tank is double-walled
- There is on-going monitoring of the tank (interstitial monitoring for leaks and visual inspection)

To assist in determining what and how to inspect, the EPA has created a set of reduced testing requirements for shop-built double walled tanks. For these tanks, the EPA recommends the inspection to include:

- Visual inspection of outer walls for signs of deterioration, discharges or accumulation of oil inside the dike area,
- Visual inspection of the inner wall and interstitial spaces (EPA understands that this is not possible with ConVault tank design),
- An operational check on all automatic devices that monitor the interstitial space,
- Visual check of all piping, equipment and connected devices to ensure they are not leaking.

NOTE: If visual inspection indicates that tank is leaking or has otherwise failed, the facility should preferably replace the tank. If tank repairs are conducted instead, non-destructive integrity testing will be conducted to verify that repairs were completed properly.

Some States require annual testing of AST leak detection device (e.g., State of Florida). Additionally, initial tank(s) registration and permit application submission may be required by some States/Counties. State and County-specific requirements need to be verified during the SPCC Plan development or update. For the aboveground tanks that do not require an SPCC Plan, visual inspections should be included in the BMP plan.

1.8.3 Underground Storage Tanks (USTs)

With the modernization of the NWS, it has been assumed that all underground tanks have been located and moved. However, this may not be the case. The definition of an underground storage tank is “a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground that stores either petroleum or any hazardous substance listed on the list generated under CERCLA (or Superfund) and published in 40 CFR 302.4.”

The definition does not include:

- Tanks used for storing heating oil for consumptive use on the premises where stored
- Septic tanks
- Surface impoundment, pit, pond or lagoon
- Storm water or wastewater collection systems, or
- A storage tank located in an underground area (such as a basement, cellar or mine) if the tank is situated upon or above the surface of the floor

Based on this definition, a petroleum tank that is entirely aboveground but has an extensive underground piping system may meet the legal definition of an underground tank and be subject to the EPA and State regulations.

Should a previously unknown UST be discovered, contact the NWS Regional/Operating Unit Environmental/Safety Coordinator and NWSH environmental and safety staff for assistance in establishing the UST compliance program.

If an NWS facility or work site uses an UST, or an aboveground tank is found to meet the definition of an UST because of buried piping, or an old, forgotten tank is uncovered, the Facility Manager must:

- Ensure it is registered with the appropriate State authority
- Ensure the tank meets the design standards in 40 CFR 280.20 or State equivalent standards
- Perform release detection to determine if it is leaking
- Ensure there is a proper response to any spills
- Perform corrective action (clean-up) if a release has occurred
- Properly close when taken out of service
- Maintain UST-required records
 - a. UST Registration

As required by the Hazardous and Solid Waste Amendments, owners or operators of USTs that were in existence on or after January 1, 1974 were required to document the existence and location of the tank as well as its contents by notifying the State or local agency designated to manage this program. Because this notification was due in 1985, contact the NWS Regional/Operating Unit Environmental/Safety Coordinator and/or NWSH environmental and safety staff before contacting the State.

b. Design Standards for new USTs

The EPA design standards for USTs and their associated piping are found in 40 CFR Part 280.20. These regulations require:

- 1) The material of construction must be:

- a. Fiberglass-reinforced plastic, or
 - b. Cathodically-protected steel, or
 - c. Steel-fiberglass-reinforced plastic composite, or
 - d. Metal without corrosion protection if a corrosion expert determines the site is not corrosive enough to cause the tank to have a leak during its operating life and the tank is maintained as required by the corrosion expert.
 - e. The tank construction and corrosion protection is determined by the implementing agency to be appropriate.
- 2) The piping must be designed, constructed, and protected to prevent releases
 - 3) The tank has spill and overflow prevention equipment
 - 4) The installation must be certified by the installer or a Registered Professional Engineer
- c. Upgrading Existing USTs

By December 22, 1998, all existing USTs were required to be upgraded to meet the design standards for new USTs. If it is determined that an existing tank has not been upgraded, contact the NWS Environmental/Safety Coordinator and/or NOAA environmental personnel immediately.
 - d. Operation of a UST
 - 1) Release (leak) Detection

As required by 40 CFR 280.40(a), every UST must have a release detection system that can detect a leak from any part of the tank or its piping that routinely contains petroleum. This system must be installed, calibrated, operated, and maintained in accord with the manufacturer's specifications. In 40 CFR 280.43, the EPA defines several methods for release detection and the requirements for each. Some of the acceptable methods include inventory control, manual gauging, tank tightness testing, automatic tank gauging, vapor monitoring, groundwater monitoring, and interstitial monitoring of the space between the double walls.
 - 2) Monthly Monitoring

Every UST must be inspected monthly using at least one of the methods below:

 - a. Monitoring the interstitial space between the inner and outer tank walls (interstitial monitoring)
 - b. Using a device to continuously monitor the level of the liquid in the tank (automatic tank gauging)
 - c. Using sensors to monitor the soil surrounding the tank for petroleum vapors
 - d. Using a system to sample and check the groundwater downstream of the tank
 - e. Using a statistical program to reconcile the inventory
 - f. Or any method approved by the regulatory agency (usually the State)

1.8.4 EPCRA Reporting Requirements

- a. Determine the list of regulated materials

EPCRA requires community notification if any Hazardous Chemical (HC) regulated by the OSHA Hazard Communication Standard in 29 CFR 1910.1200 (requiring Safety Data Sheet) is present at any one time in a quantity equal to or greater than 10,000 pounds. Some States have more stringent HC reporting requirements. Consult specific State requirements on <https://www.epa.gov/epcra/state-tier-ii-reporting-requirements-and-procedures>). Notification is also required when an Extremely Hazardous Substance (EHS) identified in 40 CFR Part 355 is present in a quantity equal to or greater than 500 pounds or the Threshold Planning Quantity (TPQ), whichever is less.

The EPCRA rules regulate the amount of OSHA-defined HC or EHS that is present at a facility. While the definition of a facility can vary from state-to-state, in 40 CFR 370.20, the EPA defines the term “facility” to mean all buildings, equipment, structures and other stationary items that are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by or under common control with, such person). The term facility includes manmade structures as well as all natural structures in which chemicals are purposefully placed or removed through human means such that it functions as a containment structure for human use. For purposes of emergency release notification, the term includes motor vehicles, rolling stock and aircraft.

By definition, a “facility” must be “located on a single site or on contiguous or adjacent sites.” EPA Section 313 Industry Guidance (dated January 1999) further clarifies definition of facility for the purpose of EPCRA Tier II reporting. It states that if two establishments owned or operated by the same company or have the same parent company and are connected to each other by a piece of property that is owned by one of the establishments or the same parent corporation, or if they are separated by an easement (e.g., railroad tracks, public road, public catchment basin), they are still considered to be contiguous or adjacent and are therefore part of the same facility.

Per 23 USCS § 101 (27) [Title 23. Highways; Chapter 1. Federal-Aid Highways], the term public road means “any road or street under the jurisdiction of and maintained by a public authority and open to public travel.” Public authority is defined as a Federal, State, county, town, or township, Indian tribe, municipal or other local government or instrumentality with authority to finance, build, operate, or maintain toll or toll-free facilities.

To determine the HCs used at the facility, review the site-specific inventory of hazardous chemicals prepared in accordance with Procedure 7 of NWSM 50-1115 “Occupational Safety and Health Manual”

To determine the EHS used at the facility, review Appendix B to this manual, “The List of Hazardous and Extremely Hazardous Substances.” The EHS can be identified by entries under the column heading “40 CFR 355 EHS RQ” and/or “40 CFR 355 EHS TPQ.”

NOTE: To determine the total amount of a chemical on-site, find the specific gravity (sp.gr.) listed on the SDS for the product. Multiply the sp.gr. by 8.345 pounds per gallon to obtain the weight per gallon of the HC or EHS. Divide the appropriate quantity limitation (10,000 pounds for an HC; the TPQ or 500 pounds for an EHS) by the weight per gallon of the HC or EHS. The result is the maximum amount of the material, in gallons, that the facility can store and that is not be regulated under EPCRA.

- b. For each regulated material, a copy of the SDS must be sent within 3 months of the facility becoming active to the local Fire Department and/or the Local Emergency Planning Committee (LEPC) or the State Emergency Response Commission (SERC) - whichever has jurisdiction over the facility. It should also be provided upon request from a Fire Department, LEPC, or SERC.

NOTE: Contact the NWS Regional/Operating Unit Environmental/Safety Coordinator or NWSH environmental/safety personnel to determine which agency has jurisdiction.

In lieu of a SDS for each EHS, the NWS facility may submit:

- 1) A list of hazardous chemicals for which a MSDS/SDS is required
- 2) The chemical or common name of each hazardous chemical
- 3) Hazardous components of each hazardous chemical

If a NWS facility is regulated by EPCRA, as required by 40 CFR 355.30(c), the Station Manager needs to appoint a representative to serve on the LEPC.

NOTE: Even if a NWS facility is not required to join the LEPC, it is highly recommended that each facility sends a representative. In the event of an emergency involving a hazardous material (i.e. fire, explosion, release, etc.), the LEPC will usually call the NWS to obtain pertinent weather information. Each NWS facility should work with the LEPC to ensure the needed information is provided without delays. The LEPC is comprised of local experts in the management of hazardous materials, substances or wastes - experts who are often willing to provide assistance to the NWS at no charge.

Under EPCRA, NWS facilities must submit Tier II inventory report to the LEPC, SERC, or Fire Department that has jurisdiction over the facility

The SERC, LEPC or Fire Department can request a Tier II report at any time. If requested, the NWS facility must submit the required form within 30-days.

Submit the Tier II form annually **on or before March 1** of each year to the SERC, LEPC, or Fire Department that has jurisdiction over the NWS facility.

Additional information on State specific EPCRA reporting requirements, including submittal of information to LEPC and Fire Departments, can be found at the following link:

<https://www.epa.gov/epcra/state-tier-ii-reporting-requirements-and-procedures>

1.9 Storage of Specific Materials Used by the NWS

1.9.1 Gasoline

a. Small Quantities

Gasoline is a Category 1 flammable liquid. Small quantities of gasoline must be stored in accordance with Section 16 of NWSM 50-1115 - Occupational Safety & Health manual that details the specific requirements for flammable and combustible liquid storage. This section details the containers, storage cabinets, locations, and procedures that must be used.

b. Large Quantities

NWS facilities do not typically store large amounts of gasoline in tanks. If the storage of more than 55 gallons of gasoline is contemplated, consult with the NWS Regional/Operating Unit Environmental/Safety Coordinator and/or NWSH environmental and safety staff.

1.9.2 Oil

NWS facilities and work sites store two types of oil:

- New, unused oil
- Spent, used oil

Although the hazards of new and used oil are the same, used oil is regulated by the EPA and the States differently from the unused oil - hence the two are stored differently.

a. Unused Oil

While there are no EPA rules for the storage of small quantities of unused oil (less than 1,320-gallons), to minimize the possibility of a spill, best management practices require that unused oil be stored in the original container. It must be stored away from food and beverages and the storage location must provide containment to minimize the potential release to the environment in the event of a leak or spill. If the oil is transferred to another container to be used at the work site, the container must be labeled to identify the contents as oil.

b. Used Oil

Because the used oil requirements vary from state-to-state, the NWS Regional/Operating Unit Environmental/Safety Coordinator and/or NOAA environmental personnel should be contacted to determine if specific rules exist. To meet the EPA requirements, used oil generated from the maintenance of the emergency generator and other NWS equipment must be stored in DOT-approved containers (typically 5, 10 or 55-gallon drums - but not a gasoline can) that are:

- a. In good condition (no dents or rust)
- b. Labeled "Used oil" or equivalent (i.e., used dielectric fluid)

Note: State-specific requirements for labeling used oil containers need to be confirmed.

- c. Stored in a contained area that will prevent any releases or spills from reaching

the “waters of the U.S.”

- d. Dated to show when the oil was placed in the container

Spill response equipment such as spill sorbant, booms or pillows, shovels, plastic tarps and bags must be readily available and NWS personnel must be trained in how to respond.

1.9.3 Ethylene Glycol Based Antifreeze

Ethylene glycol based products (commonly known as “antifreeze”) are used in diesel emergency generators and other engine cooling systems. Ethylene glycol is toxic to humans and animals. Because states have the authority to regulate antifreeze use, the rules for storage of used antifreeze can vary significantly from the requirements for unused antifreeze.

- a. Unused Antifreeze

Like unused oil, best management practices require that unused antifreeze be stored in its original container in a location away from food and beverages and if possible, the storage location must provide containment of the antifreeze in the event of a spill or leak. If antifreeze is transferred to another container for use at the work site, the transfer container must be labeled to identify the contents.

- c. Used Antifreeze Solution (Antifreeze/Water Mixture)

A used antifreeze and water solution is generated from the maintenance of the emergency generators and other NWS equipment. It must be stored in the Department of Transportation (DOT)-approved containers (typically 5, 10 or 55-gallon drums) which are:

- In good condition
- Labeled “Antifreeze/Water Mixture”
- Stored in a contained area that will prevent any release or spills from entering the soil or water

Spill response kits must be readily available and NWS personnel must be trained in their use.

1.9.4 Propylene Glycol from Rain Gauges and AWPAG.

Only technical, food grade propylene glycol must be used in NWS rain gauges and All Weather Precipitation Accumulation Gauge (AWPAG). To prevent evaporation, a small amount of oil is added to rain gauges. The oil blankets the collected rainwater from the air and hence minimizes the evaporation loss. Likewise, in colder climates, a small amount of propylene glycol is also added to the rain gauge and AWPAG to prevent the collected water from freezing. The result is that the collected rainwater is a mixture of oil/propylene glycol/water or propylene glycol/water.

- a. Unused Propylene Glycol

Best management practices require that unused propylene glycol is stored in its original container in a location away from food and beverages. The storage location must provide containment of the propylene glycol in the event of a spill or leak.

b. Used Oil/ Water/Propylene Glycol Mixture

Because the collected rainwater can either be disposed as a mixture of oil/propylene glycol/water or separated into oil and propylene glycol/water solution, storage options can vary. If the mixture is to be disposed as a oil/propylene glycol/water solution, it normally can be added to the used oil drum. The used oil contractor must be contacted prior to mixing with the used oil to determine if this procedure would create any problems in recycling the oil.

If the mixture is to be separated, it can be temporarily stored in a collection vessel with a bottom valve (such as a plastic picnic jug). The vessel must be clearly marked with the words “Oil/Propylene Glycol/Water Mixture - DO NOT DRINK!”

Periodically empty the vessel using the bottom valve to drain off the water/propylene glycol mixture and discharge to the sewer system , if allowed by the Publicly Owned Treatment Works (POTW). If this solution cannot be discharged to the sewer system, add to the antifreeze/water mixture collected from servicing the diesel generator.

As the oil layer drains from the collection vessel, either:

- Filter it using a paper towel or coffee filter and funnel and collect for reuse in the rain gauges, or
- Collect it and add to the used oil collected from servicing the diesel generator.

c. Used Propylene Glycol/Water Mixture

A used propylene glycol and water solution generated from AWPAG can be stored in plastic containers and labeled: “Propylene Glycol/Water Mixture - DO NOT DRINK!”

More information about disposal of ethylene and propylene glycol and their solutions can be found in 2.11.2

1.9.5 Batteries

Typically, NWS work sites will employ a contractor to service the lead acid batteries. As a result, the vendor will bring in new batteries as needed and immediately remove the spent batteries, eliminating the need to store these batteries. Some work sites cannot use a contractor and thus must create a storage area for both new and used batteries. Battery recycling laws by State can be found on: <https://www.call2recycle.org/recycling-laws-by-state/>

a. Lead Acid Batteries

Whether new or spent, the storage of lead acid batteries is the same. Because they contain sulfuric acid, these batteries must be stored so that:

- 4) They are protected from physical damage to the casing
- 5) Spills and other releases will be contained
- 6) Contact with other materials is minimized
- 7) Temperature variation is controlled

To ensure all leaks are contained, lead acid batteries should be stored on a battery tray.

b. Alkaline/Nickel Cadmium/Lithium Batteries

Depending on the recycling vendor selected, storage of smaller batteries (A, C, D, AA, AAA, 6V, etc.) may vary. Some battery recyclers prefer the nickel cadmium batteries to be segregated from all others but this is not a universal rule. While any non-conductive container can be used, it is recommended that a plastic tub with an easily removable lid be used to collect these batteries. The container must be marked "Used Batteries for Recycling" and be located in an area accessible to facility employees to encourage its use.

Additionally, the marking must include a point of contact (in case there are questions or problems) and the accumulation start date (which begins when the first battery is placed into the container). There is a one-year on-site storage limit from the accumulation start date.

The Department of Transportation adjusted its shipping rules for lithium batteries, including lithium metal and lithium ion chemistries, effective August 2015 in response to several serious incidents that occurred as a result of the transportation of lithium and lithium ion batteries. The NWS uses and ships lithium and/or lithium ion batteries in various equipment including computer equipment, signal processing systems and cell phones.

All lithium batteries or equipment containing lithium batteries must be packed to prevent short circuits, accidental activation of equipment or movement within the outer packaging. Batteries packed with, but not contained in, equipment or separate batteries must be individually packed within non-metallic inner packaging and the packaging must be able to withstand a 1.2 meter drop test.

Except for a package containing button cell batteries installed in equipment, outer packaging must have a lithium ion or lithium metal battery handling label affixed to it and the shipment must be accompanied by a document stating:

- 1) The package must be handled with care because a fire hazard exists if it is damaged,
- 2) Special procedures must be followed if the package is damaged, including inspection and repacking if necessary, and;
- 3) A telephone number to call for more information regarding the contents of the package

Batteries to be shipped by ground transportation to a permitted storage or disposal facility or for the purposes of recycling need only meet the requirements described above as long as they are below 5g lithium content for a lithium metal cell, 25g for a lithium metal battery, 60Wh for a lithium ion cell or 300 Wh for a lithium ion battery. Batteries over these sizes are regulated as hazardous materials when shipped for disposal or recycling.

Quantity, weight and size of batteries, as well as the method of shipping, can all change the requirements of how a package of new batteries and equipment containing batteries are labelled and any documentation or manifest requirements. Generally the requirements for ground shipping are less stringent than those for shipping by air, however, depending on the factors described above, either type of shipment may be regulated as Class 9 Hazardous Material. Please see the National Weather Service Guidance Document on Shipping Lithium Batteries

posted on NWS Environmental and Safety web page for additional information:

https://www.ops1.nws.noaa.gov/Secure/SAFETY/Lithium_batteries.pdf

1.9.6 Fluorescent Tubes

Most NWS facilities generate used fluorescent bulbs. Because these tubes normally contain enough mercury to fail the EPA Toxicity Characteristic Leaching Procedure (TCLP) test for mercury, the bulbs are hazardous waste unless recycled.

The General Electric (GE) fluorescent tubes with green ends (Ecolux) can be disposed in the garbage. These tubes have over 85% less mercury than the standard tubes and as a result, they pass the EPA TCLP for mercury. The test results can be found at http://www.geconsumerandindustrial.com/environmentalinfo/regulations_resources/tclp_test_results.htm

NOTE: GE warns that although these tubes pass the Federal TCLP test, State and/or local regulations may still regulate their disposal. GE has posted the state regulations and a list of recyclers at www.lamprecycle.org

As the spent tubes are accumulated, the outer box should be marked with the words “Spent Fluorescent Tubes” or “Universal Wastes - Fluorescent Tubes” as well as the accumulation start date. Remember that these tubes can only be kept on-site for one year from the accumulation start date.

1.9.7 Pesticides

Typically, NWS facilities or work sites have the contract with a vendor to apply pesticides around the property. These vendors normally bring to the site the pesticides they are going to use and take all residual materials when they leave. Some facilities, however, augment these applications with the use of commercially available ant or wasp killing agents on a spot basis. Although these commercial containers are relatively small in volume, they can represent a serious health threat to NWS employees, if not stored and used properly.

Small, Over-the-Counter Containers must be stored:

- a. Away from food or beverage handling areas
- b. Near a ventilation system which could remove vapors, if necessary
- c. Near personal protective gear and spill kits.

Larger Containers

For NWS facilities or work sites that mix and use pesticides for use at the facility or work site, the requirements of Section 10 of this Manual must be reviewed. The pesticides must be stored:

- a. In the original container if possible or if mixed for use, in a container labeled to identify the contents
- b. In a well-ventilated area if possible
- c. Near personal protective gear and spill kits
- d. Near an emergency shower or eyewash station.

If larger containers are used, the storage area must be inspected quarterly by a certified applicator.

1.9.8 Paints

While latex paint poses little or no threat to human health or the environment, oil-based paint and spray cans present a different level of risk and must be stored appropriately.

Most oil-based paints and spray paints are flammable material as defined in NWSM 50-1115 - Occupational Safety and Health Manual, Procedure 16, Flammable Liquid Storage. As a result, these materials must be stored in accordance with section Procedure 16 that describes storage considerations for these materials.

In general, paint containers must be kept closed and stored away from high temperatures. Original labels must be maintained if possible or the container clearly marked to identify the contents.

1.9.9 Compressed Gas Cylinders

The safe storage of compressed gas cylinders is described in NWSM 50-1115 Occupational Safety and Health, Procedure 9 - Compressed Gas Safety.

The section details general storage rules in 9.3.1 for all compressed gases but also provides specific rules for:

- Oxygen in 9.3.2
- Acetylene in 9.3.3
- Liquefied Petroleum Gas in 9.3.4
- Hydrogen in 9.3.5.

1.9.10 Cleaning Solvents and Degreasers

While many cleaning solvents and degreasers used by the NWS previously contained chlorinated solvents, international agreements to reduce the damage to the ozone layer have greatly decreased the production and use of these materials. Chlorinated solvents are usually toxic and harmful, are heavily regulated by environmental agencies. Never mix chlorine bleach and ammonia together since toxic fumes and potentially lethal vapors can be produced as a result. Current cleaning materials tend to be either flammable materials or corrosives.

To determine the appropriate storage method, review the /SDS for each material and its flash point. If the solvent or degreaser has a flash point less than 199.4°F, it is considered a flammable material. The requirements for storage in Procedure 16 of NWSM 50-1115 would then apply.

If the material has a pH below 6.0 or above 8.0, it is considered corrosive. This will require the use of plastic containers (such as a dishpan or trays) to maintain proper segregation from other materials and provide secondary containment in the event of a leak.

1.9.11 Mercury Containing Equipment (MCE)

While the NWS has reduced or eliminated the use of thermometers, barometers, sling psychrometers and thermometers that contain elemental mercury at most facilities, these devices may still be used or stored in historic displays. Additionally, facilities use mercury switches to

control the operation of certain Heating, Ventilation, Air Conditioning (HVAC) systems and electrical equipment. If these devices are discarded, they are classified as hazardous waste due to the mercury content and must be sent to a permitted hazardous waste facility for treatment, disposal or recycling. EPA has included MCE in 40 CFR 273.4 (Applicability – Mercury Containing Equipment) as part of standards for the Universal Waste Management. If the state where the NWS facility is located has adopted the rule, the accumulation, packaging, labeling, manifesting of these wastes will be easier if managed as universal waste.

Prior to disposal, it is necessary to check with the NWS Regional/Operating Unit Environmental/Safety Coordinator and/or the NWSH environmental and safety staff to determine if there are any State-specific requirements.

Mercury-containing equipment has been used in hundreds of devices at levels ranging from less than a gram up to several pounds. Some of the various types of MCE are:

- High Intensity Discharge Lamps
- Mercury Containing Switches - furnace controls, HVAC controls, laboratory and industrial equipment
- Mercury Thermostats
- Silent Wall Switches (Prior to 1991)
- Freezer and Flame Sensors - gas fired devices and pilot lights.
- Manometers/Barometers/Thermometers.
- Float Switches - sump pumps and septic tanks
- Mercury regulators

Each field office should assess the facility and equipment to determine if they are likely to contain mercury. See Section 2.10.4 for MCE management. All MCE to be discarded should be placed inside a larger container with a tight fitting lid that is designed to prevent the escape mercury into the environment during storage and transport. For example, secure the device in a container with electrician's tape or place MCE product in sealed zipper storage bag and then in a secondary container. Kitty litter or oil-absorbent material should be placed around the sealed MCE product to protect it from breaking or sudden shocks.

Each MCE device or container of devices should be marked with one of the following phrases, as appropriate:

- Universal Waste – Mercury Containing Equipment
- Waste – Mercury Containing Equipment
- Used Mercury Thermostats
- Waste Mercury Thermostats
- Universal waste – Mercury thermostats

It is recommended to add additional label to storage container: "Mercury-DO NOT OPEN." MCE can be stored on site only for one year from the date the MCE was discarded. For transportation requirements, see Section 3.11.9.

1.9.12 Electronic Equipment

In electronic equipment, such as Computers and Monitors, Cathode Ray Tubes (CRT) glass typically contains enough lead to be classified as hazardous waste when it is being recycled or disposed of. In addition, circuit boards can contain many heavy metals used in the manufacture

of the boards. These items cannot be placed in ordinary solid waste disposal. More information about electronic equipment disposal can be found in section 2.11.3. The following link contains resources available to recycle electronic equipment by Responsible Recycling (R2) and e-stewards:

<http://www.epa.gov/osw/conserve/materials/ecycling/certification.htm>

1.10 Responsibilities

1.10.1 NWS Headquarters (NWSH)

- a. The NWSH Environmental/Safety Office will provide assistance to Regional Headquarters, Operating Unit, and field personnel to ensure that NWS facilities comply with requirements of this section.
- b. NWSH will coordinate with NOAA SECO, as necessary, regarding compliance issues related to this section.

1.10.2 Regional or Operating Unit Environmental/Safety Coordinator

- a. Will monitor and promote compliance with the requirements of this section at field offices or Operating Unit facilities.
- a. Will ensure that applicable procedures are implemented at Regional Headquarters or Operating Unit facilities to ensure compliance with requirements of this section.
- d. Will ensure flammable, combustible, corrosive, and reactive liquids, used and stored at Regional Headquarters or Operating Unit facilities, are compliant with the requirements of this section.
- e. Will assist in procuring the services of a Professional Engineer to review facility or work site SPCC Plans (only when required).

1.10.3 Station Manager

- a. Will have oversight over the implementation of this section and ensure that the requirements of this section are followed by individuals at the NWS facility.
- b. Will ensure sufficient personnel and funding are available to enable compliance with all applicable requirements of this section.
- c. Will ensure flammable, combustible, corrosive and reactive liquids are used and stored according to the requirements of this section.
- d. Will ensure that procedures are implemented for reporting releases and compatible storage of flammable, combustible or corrosive liquids.
- e. Will ensure the SPCC Plan is reviewed at least annually to determine if any changes to emergency contacts, equipment and/or operations occurred. In addition, Station Manager will ensure that the Plan is thoroughly reviewed, amended (if necessary), and self-certified every five (5) years by a facility manager or re-certified by Professional Engineer if total aboveground oil storage capacity of diesel is more than 10,000 gallons or when alternative methods for environmental protection are added to include more effective prevention and control.

- f. Will ensure the Tier II report is submitted to the SERC, LEPC or local Fire Department on an annual basis (if applicable).
- g. Will review or delegate review of this section on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review will be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

1.10.4 Environmental or Environmental/Safety Focal Point or Designated Person

- a. Will ensure any tasks delegated to them by the Station Manager are implemented in accordance with the requirements of this section.
- b. Will ensure a reporting procedure is in place for reporting all of hazardous substance releases in excess of the Reportable Quantities. For petroleum products (e.g., diesel) reporting will be done in accordance with requirements described in the facility's SPCC or BMP plan.

1.10.5 Employees

- a. Individual employees affected by this section are required to read, understand, and comply with the requirements of this section.
- b. Report all violations of the requirements of this section to their supervisor or Environmental or Environmental/Safety Focal Point.
- c. Report all spills or releases to their supervisor or Environmental or Environmental/Safety Focal Point.

1.11 References

The following list of references is incorporated as a whole or in part into this section. These references can provide additional explanation or guidance for the implementation of this section.

American National Standards Institute

ANSI, Z358.1	<i>Emergency Eyewash and Shower Equipment</i>
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National Fire Protection Association

NFPA 30	<i>Flammable and Combustible Liquids Code</i>
NFPA 58	<i>Liquefied Petroleum Gas Code</i>

NWS

50-1115, Occupational Safety and Health Manual	Procedure 7	<i>Hazard Communication</i>
	Procedure 9	<i>Compressed Gas Safety</i>
	Procedure 16	<i>Flammable and Combustible Liquids.</i>

U.S. Department of Labor, Occupational Safety and Health Administration

29 CFR 1910.106	<i>Flammable and Combustible Liquids</i>
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U.S. Department of Transportation

49 CFR	172	<i>Hazardous Materials Table, Special Provisions, Hazardous Materials Communication Emergency Response Information, and Training Requirements</i>
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U.S. Environmental Protection Agency

40 CFR	273	<i>Standards for Universal Waste Management</i>
	279	<i>Standards for the Management of Used Oil</i>
	280	<i>Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (USTs)</i>
	302.4	<i>Designation of Hazardous Substances</i>
	355	<i>Emergency Planning and Notification</i>
	370.41	<i>Tier II Emergency and Hazardous Chemical Inventory Form http://www.epa.gov</i>

ATTACHMENT A

**SPILL PREVENTION, CONTROL AND COUNTERMEASURES BEST
MANAGEMENT PRACTICES (BMP) PLAN**

Facility Name and Address:

NOAA NATIONAL WEATHER SERVICE
[Type Name and Address here]

This Plan is developed strictly as a Best Management Plan. The determination is based on:

_____ Facility does not exceed capacity (total AST capacity is less than 1320 gallons).

_____ Facility meets capacity requirements (more than 1320 gallons) but, a discharge will not reach navigable waterways.

Designated Person Responsible for Spill Prevention - Designated Responsible Official (DRO):

DRO Printed Name:

DRO Signature:

Date:

Telephone #:

Facility Environmental or Environmental/Safety (E/S) Focal Point:

Environmental or E/S Focal Point Printed Name:

Environmental or E/S Focal Point Signature:

PART I - GENERAL INFORMATION

A. GENERAL

This section of the Best Management Practices plan provides general information about the facility.

1. Name:

National Weather Service (NWS) Weather Forecast Office (WFO)

2. Date of Initial Operation:

3. Location:

Street:

City:

State/Zip Code:

Latitude:

Longitude:

4. Name and phone number of Owner (POC)

5. Facility Contacts (e.g., Environmental/Safety or Environmental Focal Point, Station Manager)

Name:

Title/Role:

Telephone Number:

B. SITE DESCRIPTION AND OPERATIONS

The facility is located in _____ County, State of _____, approximately _____ miles _____ (cardinal direction) of _____ (list major city). The Aboveground Storage Tanks (AST) are used to store diesel fuel for generators used for emergency backup power to the WFO. This Facility has _____ (specify number) (specify capacity) generator tank(s) and _____ (specify capacity) day tank.

Fuel usage for the facility is estimated at _____ gallons per month based on fuel records for a 6-month period. Facility generator is tested _____ (specify frequency). Fuel consumption would increase based on the frequency and duration of any power outages.

PART II - SPILL COUNTERMEASURES AND REPORTING

A. SPILL COUNTERMEASURES

This section presents countermeasures to contain, clean up, and mitigate the effects of an oil spill that impacts navigable waters or adjacent shorelines.

A spill containment and cleanup activity will never take precedence over the safety of personnel. No countermeasures will be undertaken until conditions are safe for workers. The **SWIMS** procedure should be implemented as countermeasures:

S - Stop the leak and eliminate ignition sources.

- 1) Attempt to seal or somehow stop leak if it can be done safely.
- 2) Attempt to divert flow away from the drainage ditch with a spill barrier or the contents of spill kit. The spill kit is located at _____.
- 3) Eliminate all ignition sources in the immediate area.

W - Warn others.

- 1) Yell out "SPILL." Inform the person in charge at your facility.
- 2) Account for all personnel and ensure their safety.
- 3) Notify contacts and emergency response contractor as described in the following section for assistance in control and cleanup.

I - Isolate the area.

- Rope off the area

M - Minimize your exposures. Stay upwind

S - Standby to assist the emergency response contractor.

D. SPILL REPORTING

General Notification Procedures For All Spills

The Station Manager is charged with reporting all oil spills that result from facility operations. When petroleum product is released, a number of notifications will be required. These notifications are usually made in the following order:

- Local responder (Usually a “911” call) for offsite release, fire or medical emergency.
- Spill Contractor:
- Station Manager (if not on site when release occurred):
- National Response Center (if required) – see instructions below.
- NOAA Safety and Environmental Compliance Office (SECO) at (301) 713-2870.
- NWS Regional/Operating Unit Environmental/ Safety Coordinator:
- NWS HQ Environmental and Safety Office at (301) 427-9763.

National Response Center (NRC) Notification:

The Federal Clean Water Act, as described in Title 40 CFR Part 110.6, requires notifying the U.S. Environmental Protection Agency’s (EPA) National Response Center (or the U.S. Coast Guard [USCG]) as soon as anyone has knowledge of any discharges of oil in quantities that may be harmful. Title 40 CFR Part 110.3 defines may be harmful as a discharge that:

- Violates applicable water quality standards, or
- Causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

If either of these criteria is met contact the National Response Center online:
<http://www.nrc.uscg.mil/nrchp.html> or by phone: **(800) 424-8802**.

E. Spill Report

Complete a spill report form using the format provided in Appendix C. Send this report to the NOAA SECO and NWS HQ Environmental and Safety Office.

F. Training

The Environmental/Safety or Environmental Focal Point and an alternate should be trained in spill countermeasures. The alternate should be designated in case the primary person is offsite at the time of a spill.

G. Attachments

APPENDIX A-1	TANK ULLAGE AND FUELING LOG
APPENDIX A-2	FUEL UNLOADING PROCEDURE CHECKLIST
APPENDIX B-1	MONTHLY INSPECTION CHECKLIST
APPENDIX B-2	ANNUAL INSPECTION CHECKLIST
APPENDIX C	SPILL REPORTING FORM

APPENDIX A-1 TANK ULLAGE AND FUELING LOG

Tank Capacity _____ gallons

Date	Initials	Gauge Reading	Initial Volume of Fuel in Tank* ¹ (Gallons)	Available Capacity or Ullage ² (Gallons)	Quantity Added (Gallons)	Comments

¹ From gauge reading

² Available capacity = tank capacity - initial volume of fuel in tank

APPENDIX A-2 FUEL UNLOADING PROCEDURE CHECKLIST

Date: _____

Tank: _____

NWS Representative: _____

Supplier: _____

✓	ITEM	DESCRIPTION	COMMENT
The following six items must be completed prior to fuel unloading:			
		Move spill containment equipment, such as booms or spill barriers, into the unloading area.	
		Ensure the automatic shutoff valve is functioning properly (if applicable).	
		Determine the available capacity (ullage) of the tank by converting the reading on the fuel gauge to gallons (see Appendix A-1). The ullage should then be marked in the fueling log and communicated to the tank truck unloading contractor.	
		Block the wheels of the tank truck.	
		Place drip pans under all pump hose fittings (if applicable) after the hose is hooked up to the tank and before unloading.	
		Ensure the fill nozzle is placed in the appropriate tank appurtenance.	
During unloading			
		Ensure that the NWS representative and the tank truck operator remain with the vehicle at all times during unloading.	
		Monitor the gauges on the tank continuously to ensure the ullage is not exceeded. (Truck operator will monitor the truck gauge).	
After fuel unloading is completed			
		Record the amount of fuel unloaded in the log (Appendix A-1).	
		Before removing the fill hose from the tank, ensure that it is drained and that all drain valves are closed (if applicable).	
		Any fuel accumulated in the drip pans or spill container on the fill pipe should be poured into the tank (if it has the capacity) or disposed of appropriately (describe how it was disposed of, if applicable).	
		Inspect the tank truck before removing the blocks to ensure the lines have been disconnected from the tank.	
		Remove the blocks from the tank truck wheels.	
		Place a copy of this fuel unloading procedure checklist in the Best Management Plan.	

APPENDIX B-1 MONTHLY INSPECTION CHECKLIST

Date of Inspection:	Retain Until Date: (36months from inspection date)		
Tank Name or No.:	Date of Last Inspection:		
Inspected by:	Signature:		
Inspection Guidance: <ul style="list-style-type: none"> For equipment not included in this standard, follow the manufacturer recommended inspection/testing schedules and procedures. The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a certified inspector. It shall be performed by an owner's inspector who is familiar with the site and can identify changes and developing problems. Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and disposed of it properly. (*) designates an item in a non-conformance status. This indicates that action is required to address a problem. Non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a certified inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section. Retain the completed checklists for 36 months. In the event of severe weather (snow, ice, wind storms) or maintenance (such as painting) that could affect the operation of critical components (normal and emergency vents, valves), an inspection of these components is required immediately following the event. 			
A. TANKS	YES*	NO*	NOTES
1. Are tanks marked properly?			
2. Is area atop and around tank and within berm, free of combustible materials, debris, and stains?			
3. Is there any oil on the ground, concrete, or asphalt around the tank?			
4. Are there any visible cracks or indications of corrosion on the tank, at fittings, joints, seals, or attached ladder/platform (such as paint peeling or rust spots)?			
5. Are there any raised spots, dents, or cracks on the tank?			
6. Does it appear that the foundation has shifted or settled?			
7. Is the fuel gauge working properly?			
8. Are all vents clear so they may properly operate?			
9. If rainwater is present within containment, does capacity remain for spill control (if applicable)?			
10. Are all alarms and automatic shutoff devices working properly?			
11. Is interstitial monitor functioning properly (if applicable)?			
B. PIPING			
1. Is there any oil on the outside of or under any aboveground piping, hoses, fittings, or valves?			
2. Are aboveground piping, hoses, fittings, or valves in good working condition?			
C. SECURITY/SAFETY/SPILL COUNTERMEASURES			
1. Are lights working properly to detect a spill at night?			
2. Are all locks in the "lock" position?			
3. Are all warning signs properly posted and readable?			
4. Are vehicle guard posts in place and properly secured (if applicable)?			
5. Are spill kits easily accessible, protected from the weather, complete, and replenished if necessary?			
D. CORRECTIVE ACTION REQUIRED:			

APPENDIX B-2 ANNUAL INSPECTION CHECKLIST

Date of Inspection:	Retain Until Date: (36months from inspection date)		
Tank Name or No.:	Date of Last Inspection:		
Inspected by:	Signature:		
Inspection Guidance: <ul style="list-style-type: none"> For equipment not included in this standard, follow the manufacturer recommended inspection/testing schedules and procedures. The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a certified inspector. It shall be performed by an owner's inspector who is familiar with the site and can identify changes and developing problems. Inspect the AST shell and associated piping, valves, and pumps including inspection of the coating for Paint Failure. Inspect: <ul style="list-style-type: none"> 1. Earthen containment structures including examination for holes, washout, and cracking in addition to liner degradation and tank settling. 2. Concrete containment structures and tank foundations/supports including examination for holes, washout, settling, paint failure, in addition to examination for corrosion and leakage. 3. Steel containment structures and tank foundations/supports including examination for washout, settling, cracking, and for paint failure, in addition to examination for corrosion and leakage. Inspection of cathodic protection system, if applicable, includes the wire connections for galvanic systems and visual inspection of the operational components (power switch, meters, and alarms) of impressed current systems. Remove promptly upon discovery standing water or liquid in the primary tank, secondary containment area, interstice, or spill container. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and disposed of it properly. In order to comply with EPA SPCC (Spill Prevention, Control and Countermeasure) rules, a facility must regularly test liquid level sensing devices to ensure proper operation (40 CFR 112.8(c)(8)(v)). (*) designates an item in a non-conformance status. This indicates that action is required to address a problem. Non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a certified inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section. Retain the completed checklists for 36 months. Complete this checklist on an annual basis supplemental to the owner monthly-performed inspection checklists. Note: If a change has occurred to the tank system or containment that may affect the SPCC plan, the condition should be evaluated against the current plan requirement by a Professional Engineer knowledgeable in SPCC development and implementation. 			
A. MONTHLY CHECKLIST	YES*	NO*	NOTES
1. Have monthly inspection checklists been completed?			
B. TANKS			
1. Are all alarms and automatic shutoff devices working properly?			
2. Is interstitial monitor functioning properly (if applicable)?			
C. TANK CONTAINMENT			
1. Containment structure in satisfactory condition?			
2. Drainage pipes/valves fit for continued service?			
D. TANK FOUNDATION AND SUPPORTS			
1. Evidence of tank settlement or foundation washout?			
2. Cracking or spalling of concrete pad or ring wall?			
3. Tank supports in satisfactory condition?			
4. Water able to drain away from tank?			
5. Grounding strap secured and in good condition?			
E. TANK EXTERNAL COATING			
1. Evidence of paint failure?			
F. LEVEL & OVERFILL PREVENTION INSTRUMENTATION			
1. Has the tank liquid level sensing device been tested to ensure proper operation?			
2. Does the tank liquid level sensing device operate as required?			
3. Are overfill prevention devices in proper working condition?			
G. ELECTRICAL EQUIPMENT			
1. Are tank grounding lines in good condition?			
2. Is electrical wiring for control boxes/lights in good condition?			
H. CORRECTIVE ACTION REQUIRED:			

APPENDIX C SPILL REPORTING FORM

GENERAL		
Name of Facility:	Address:	
Completed by:	Organization:	
Position:	Phone:	
SPILL INFORMATION		
Date:	Time:	
Location at Facility:	Quantity:	
Substance Spilled:	Other:	
OUTSIDE NOTIFICATIONS		
Agencies	Recorder at Outside Agency	Date and Time
Call 911 (or local emergency agency), if there is an immediate emergency.		
NOAA SECO at: (301) 713-2870 NWS Regional/ Operating Unit Environmental/ Safety Coordinator at: NWS HQ Environmental and Safety Office at (301) 427-9763		
EPA National Response Center, or U.S. Coast Guard: (800) 424-8802		
<u>List Additional State and Local Agencies below:</u>		
Department of Environmental Quality Phone #:		
Department of Emergency Management Phone #:		
Local Emergency Planning Committee (LEPC) Phone #:		
INFORMATION ON SOURCE AND CAUSE:		
DESCRIPTION OF ENVIRONMENTAL DAMAGE:		
CLEANUP ACTION(S) TAKEN:		
CORRECTIVE ACTION(S) TO PREVENT FUTURE SPILLS:		

Note: All information must be filled in. If something is unknown, write "unknown".
Copies must be sent to the NWS HQ Environmental and Safety office and NOAA SECO.